

DE-ENTRAINMENT OF LIQUID PARTICLES FROM GAS**ABSTRACT**

- 5 A multi-tray distillation unit having a separator for de-entraining liquid particles which are picked up by an upwardly flowing gaseous stream which is flowing countercurrent to a descending liquid flow in the unit. The separator which is placed above the contact plate on which the gas contacts the liquid, comprises vertically spaced tiers of elongated, substantially horizontal open-topped liquid collector channels arrayed in parallel rows transversely to the flow of the gas. The liquid collector channels are vertically staggered to deflect the gas flow from a lower tier level through the gaps between the collection channels of an upper tier and around the channels so as to cause the entrained liquid particles to separate from the gaseous stream by inertia into the channels of the lower tier. The collected liquid is then returned through a liquid downcomer to a contact plate. An improved channel configuration has a rigidly-mounted, horizontally-elongated flow deflector extending downwards from an upper tier channel toward a lower tier channel, this provides gas flow deflection and increased efficiency of liquid particle de-entrainment. The flow deflector may be mounted directly on each upper tier channel. The channels may be formed from a single crimped and perforated metal sheet or the like, and adjacent formed tiers may be stacked to form a de-entrainment zone array. The lower tier channels may be formed from a single metal sheet having a channel bottom and sides, with a foraminous section extending upwardly from one side and a transverse section extending away from the lower channel, and terminating in a flow deflector adjacent to the bottom of a channel of an upper tier.